**Critically Appraised Topic (CAT)**

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| **Project Team:**  |
| **7A-5** |
| **Project Team Participants:**  |
| **Jack Orzepowski, Tyler Huhn, Hector Alvarez, Christine McMahon** |
| **Clinical Question:** |
| **In a patient with Parkinsons, what clinical challenges can you expect, and how may this impact the overall treatment plan?** |
| **PICO Format:** |
| **P:** |
| **Patients with Parkinson’s Disease interested in tooth replacement** |
| **I:** |
| **Are fixed prostheses** |
| **C:** |
| **Or Removeable prosthesis** |
| **O:** |
| **More successful** |
| **PICO Formatted Question:** |
| **In patients with Parkinsons disease that are interested in tooth replacement, are fixed prosthesis more successful than removeable appliances?** |
| **Clinical Bottom Line:** |
| **When choosing between a fixed prosthesis or removeable appliance in patients with Parkinson’s disease it ultimately is a decision based on each individual patient’s specific circumstances. There is no one approach fits all with this disease.**  |
| **Date(s) of Search:**  |
| **October 6, 2020** |
| **Database(s) Used:** |
| **Pubmed** |
| **Search Strategy/Keywords:** |
| **Parkinson’s Disease, Implants, Oral Health, Removeable Prosthesis, Denture** |
| **MESH terms used:** |
| **Parkinson Disease, Dental Implants, Denture** |
| **Article(s) Cited:** |
| 1. **Packer ME. 2015. Are dental implants the answer to tooth loss in patients with Parkinson’s Disease?. Prim Dent J [internet]. [cited 6 Oct 2020];4(2):35-41. Available from :** [**https://0-journals-sagepub-com.libus.csd.mu.edu/doi/10.1308/205016815814955091?url\_ver=Z39.88-2003&rfr\_id=ori:rid:crossref.org&rfr\_dat=cr\_pub%20%200pubmed**](https://0-journals-sagepub-com.libus.csd.mu.edu/doi/10.1308/205016815814955091?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed)
2. **Packer ME, Nikitin V, Coward T, Davis DM, Fiske J. 2009. The potential benefits of dental implants on the oral health quality of life of people with Parkinson’s Disease. Gerondontology[internet]. [cited 6 Oct 2020];26:11-18. Available from** [**https://0-onlinelibrary-wiley-com.libus.csd.mu.edu/doi/epdf/10.1111/j.1741-2358.2008.00233.x**](https://0-onlinelibrary-wiley-com.libus.csd.mu.edu/doi/epdf/10.1111/j.1741-2358.2008.00233.x)
3. **Schimmel M, Srinivasan M, McKenna G, Muller F. 2018. Effect of advanced age and or systemic medical conditions on dental implant survival: A systematic review and meta-analysis. Wiley Clinical Oral Implants Research [Internet]. [cited 6 Oct 2020];29(16):311-330. Available from:** [**https://0-pubmed-ncbi-nlm-nih-gov.libus.csd.mu.edu/30328186/**](https://0-pubmed-ncbi-nlm-nih-gov.libus.csd.mu.edu/30328186/)
4. **Ribeiro GR, Campos CH, Garcia RCMR. 2017. Influence of a removable prosthesis on oral health-related quality of life and mastication in elders with Parkinson disease. Journal of Prosthetic Dentistry [Internet]. [cited 6 Oct 2020]; 118(5) 637-642. Available from:** [**https://0-www-sciencedirect-com.libus.csd.mu.edu/science/article/pii/S0022391317300495?via%3Dihub**](https://0-www-sciencedirect-com.libus.csd.mu.edu/science/article/pii/S0022391317300495?via%3Dihub)
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| **Study Design(s):** |
| 1. Expert Opinion
2. **Prospective Cohort Study**
3. **Systematic Review/Meta Analysis**
4. **Prospective Cohort Study**
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| **Reason for Article Selection:** |
| 1. Examines longer term quality of life improvement of implants in patients with Parkinson’s disease. Discusses the Pros and Cons of placing implants in patients with PD. Supports the intervention portion of my PICO question.
2. **Examines the quality of life improvement from impants placed in patients with parkinsons. There are not many cases of patients with PD having implants placed. This case had the largest sample size of patients with PD and implant placement with evaluation for Qualith of Life improvements.**
3. **This article had a higher level of evidence, but covered a wider range of systemic diseases. Looking specifically at the PD section of this study, it gave a high level look at the cases of patients with PD who have had implants placed. The “success” rate of implants from their analysis ranges between 80%-100%.**
4. **This article supports our comparison of removeable prosthesis in patients with PD. It examines the Quality of Life improvements in patients with PD and have a removeable prosthesis. From a reputable journal of prosthetic dentistry.**
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| **Article(s) Synopsis:** |
| 1. Methods - Follow up to original study from 2009 (article 2). Four patients from the original 8 were still being seen. Provided longer term outcomes of implants in patients with Parkinson’s disease.

Results – Complications from inability to maintain oral health as well as parafunctional occlusal forces will result in a high level of maintenance and associated costs for patients with PD and implants. 1. Methods - 8 patients with Parkinsons followed over a 12 month period. These patients had been accepted if they had experienced problems with dentures in the past and were partially dentate, and had access to a dental surgeion for routine restorations and perio management. Follow ups took place at 3 and 12 months. The patients filled out two assessments an Oral health Quality of Life Inventory and Self Reported Assessment of Oral Health and Functional Status. These assessments were completed before stage I implant surgery, at 3 months, and 12 months after provision of the final prosthesis. The results were analyzed using the one-way repeated analysis of variance statistical test followed by the all pairwise multiple comparison procedure.

**Results – The overall implant success rate was 82%, 85% in maxilla and 81% in mandible. There was significant increase in Quality of Life at the 3 month evaluation, but no significant gains from the 3 month to 12 month assessments. There was an improvement in oral well being, eating, and satisfaction with prosthesis at the 3 month assessment and only eating and satisfaction with prosthesis was significant at the 12-month assessment.** 1. **Methods - 6,893 studies were identified of those 60 were included. This review looked at patients >75years of age and/or common systemic medical conditions with implants placed in completely or partially endentuluous humans. The database searches were from MEDLINE and other popular search engines. Results were reported according to PRISMA guidelines.**

**Results – High implant survival rates were reported for patients with PD, but there are limited case reports for review. Overall implant success rates in patients >75 had a range between 97.3% and 96.1% for 1 and 5 years. Implants for geriatric patients are a predictable treatment option.** 1. **Methods - 34 elders (17 with PD and 17 without). All underwent baseline OHRQoL(Oral health related quality of life) and ME (masticatory efficiency) evaluations. Two months after insertion of the new removeable prostheses the participants were reassessed. The OHRQoL consisted of a 49 item questionnaire and the ME was calculated using Optocal which was chewed for 40 cycles then sifted through a machine. The weight of the material that passed through a 2.8mm sieve was recorded. New dentures were made by a single prosthodontist and lab technician. This new data was recorded and analyzed by statistical software.**

**Results – Elders with PD showed an improvement in quality of life and masticatory efficiency. After denture insertion elders with PD showed similar quality of lift to the control patients, but masticatory efficieny was still less than control patients.**  |
| **Levels of Evidence:** (For Therapy/Prevention, Etiology/Harm) See <http://www.cebm.net/index.aspx?o=1025>[x]  **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)[ ]  **1b** – Individual RCT[ ]  **2a** – Systematic Review of Cohort Studies[x]  **2b** – Individual Cohort Study[ ]  **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research[ ]  **4a** – Systematic Review of Case Control Studies[ ]  **4b** – Individual Case Control Study[ ]  **5** – Case Series, Case Reports[x]  **6** – Expert Opinion without explicit critical appraisal, Narrative Review[ ]  **7** – Animal Research[ ]  **8** – In Vitro Research |
| **Strength of Recommendation Taxonomy (SORT) For Guidelines and Systematic Reviews**See article **J Evid Base Dent Pract 2007;147-150**[ ]  **A** – Consistent, good quality patient oriented evidence[x]  **B** – Inconsistent or limited quality patient oriented evidence[ ]  **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |
| **Conclusion(s):** |
| **Replacing missing teeth in patients with Parkinson’s disease requires many factors to be taken into consideration. The patients physical dexterity, at home care or aid, financial resources, and mental stability should all be taken into consideration when assessing whether to use a fixed prosthesis vs removeable appliances. The limited evidence of patients with PD currently supports both types of replacement prosthesis with the understanding of taking into consideration each individual patient’s desires, needs, and ability to have support from caregivers or family as the disease progresses.**  |